NAME: DATE:

Mastery Assessment of Unit 2 (Practice version 104)

Question 1

Let f represent a function. If $f[41] = 19$, then there exists a knowable solution to the equation below.

$$y = 6 \cdot (f[8x + 17] - 15)$$

Find the solution.

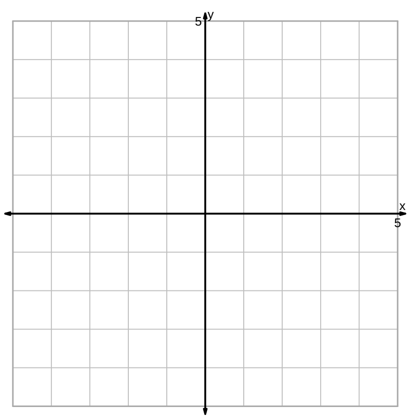
$x =$

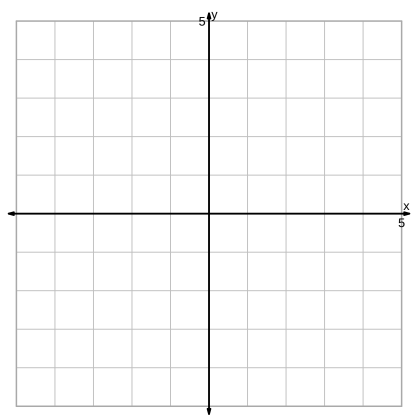
$y =$

Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

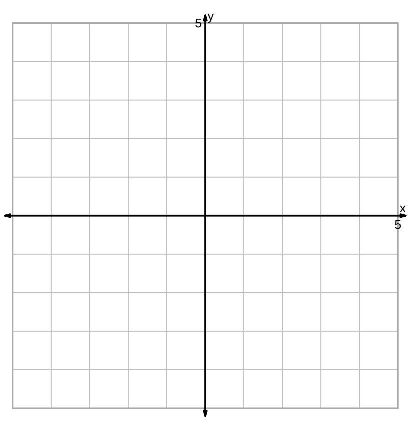
$y = 2^{2x}$

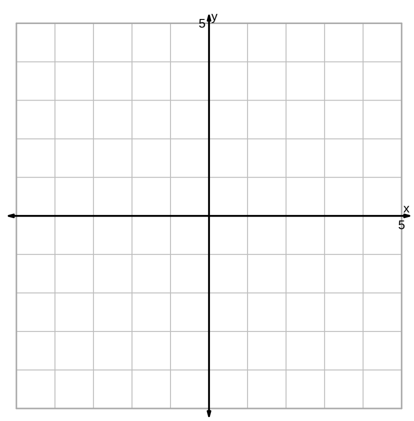




$y = \frac{x^2}{2}$

$y = \log_2\left(-x\right)$

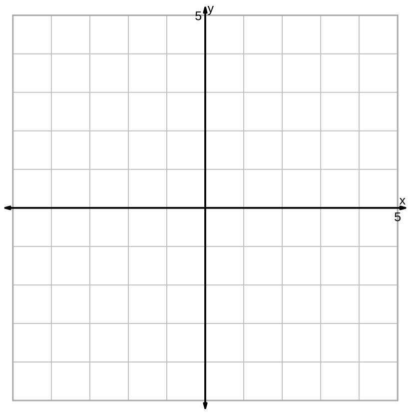


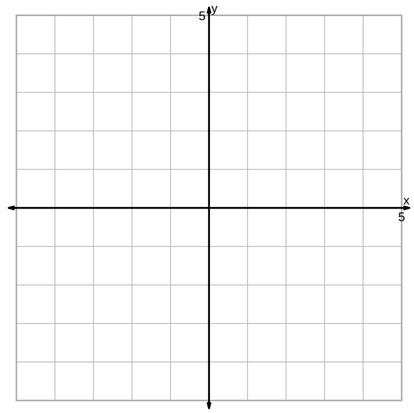


$y = \log_2\left(x\right) - 2$

Question 2 continued...

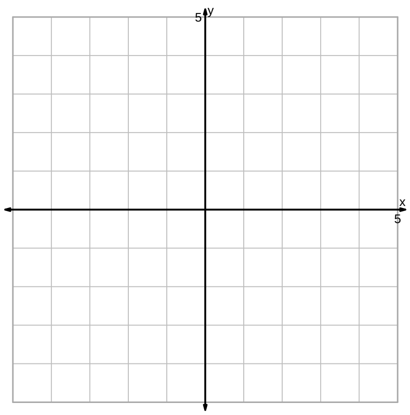
$y = -2^x$

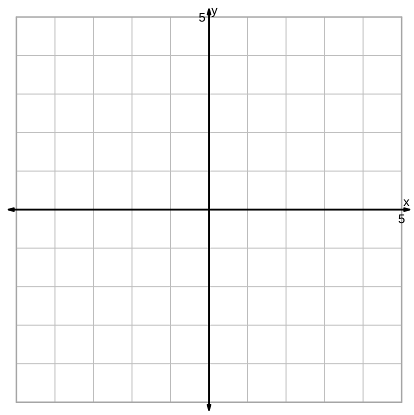




$y = 2 \cdot x^3$

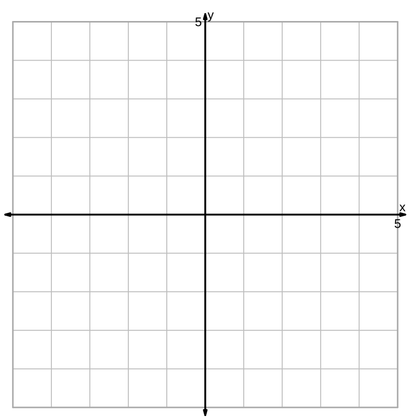
$y = \left(x-2\right)^2$

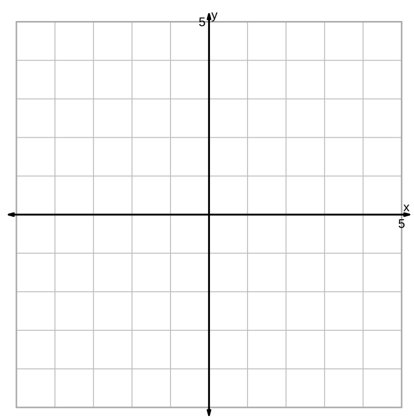




$y = \sqrt[3]{\frac{x}{2}}$

$y = \sqrt[3]{x+2}$

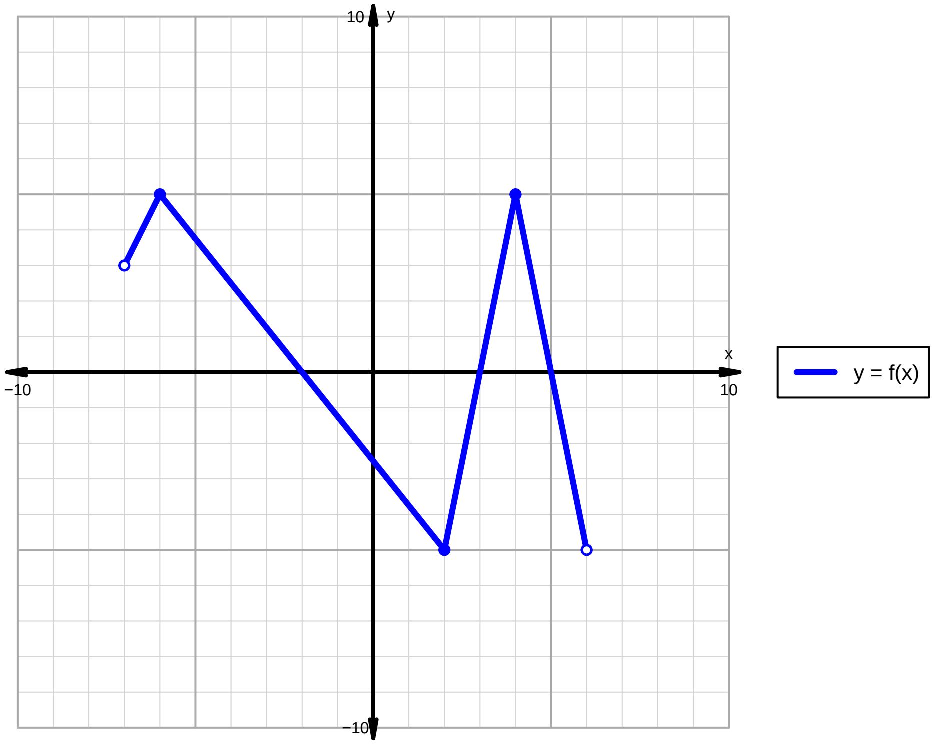




$y = \sqrt{x} + 2$

Question 3

A function is graphed below.



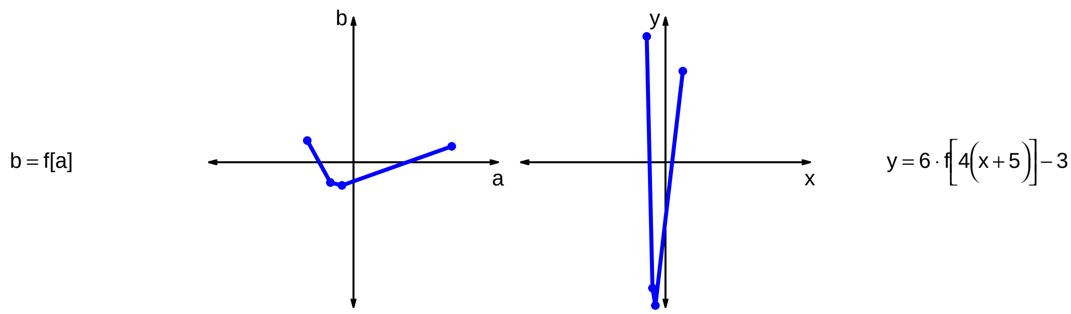
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = 6 \cdot f[4(x+5)] - 3$ are represented below in a table and on graphs.

a	b	x	y
-32	15	-13	87
-16	-14	-9	-87
-8	-16	-7	-99
68	11	12	63



a. Write formulas for calculating x from a and calculating y from b. (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = 6 \cdot f[4(x+5)] - 3$?

Question 5

A parent square-root function is transformed in the following ways:

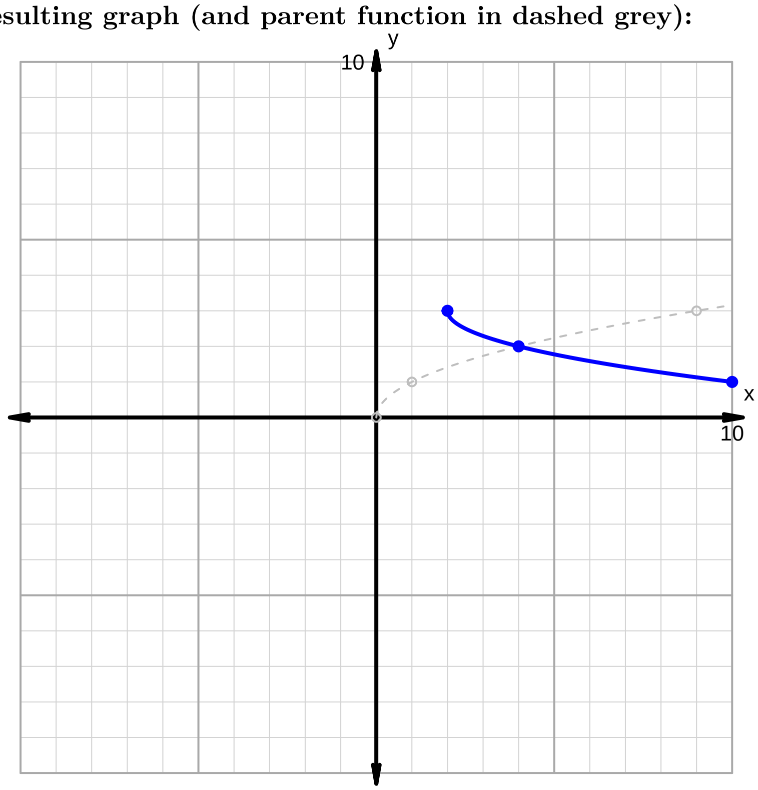
Horizontal transformations

1. Translate right by distance 1.
2. Horizontal stretch by factor 2.

Vertical transformations

1. Translate down by distance 3.
2. Vertical reflection over x axis.

Resulting graph (and parent function in dashed grey):

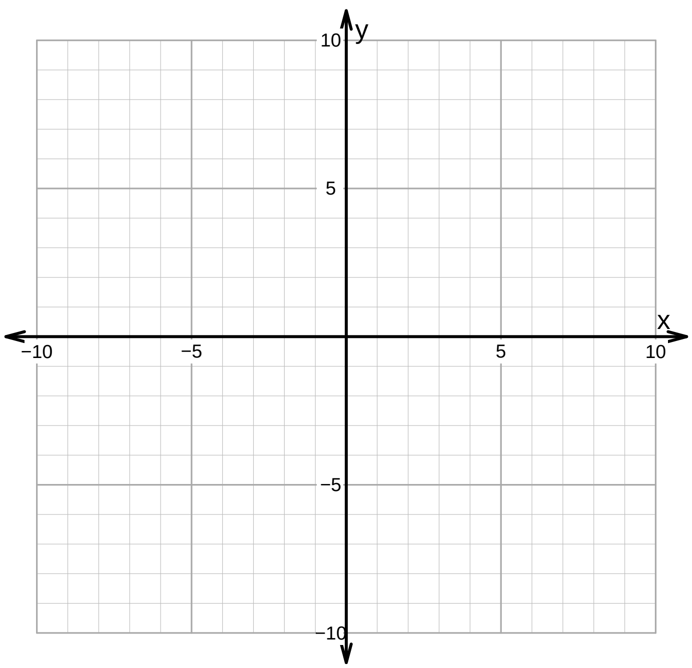


- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{1}{3} \cdot |x-2| - 1$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	